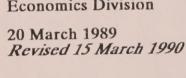




DROUGHT, AGRICULTURE AND GOVERNMENT ACTION

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ISSUE DEFINITION

The drought of 1988 in Canada's western provinces was the worst in living memory, but memory uses criteria that science does not always recognize. In the course of their history, the Prairies have experienced many types of drought, from isolated one-year occurrences to periods of 10 consecutive years of below-normal rainfall. The recurrence of dry spells in the West has influenced development in the agricultural sector. There is a limit to agriculture's ability to adapt, however, because drought, unlike other types of natural disaster, usually affects immense areas and can have long-term repercussions.

This analysis looks at the history of drought in the Canadian West. This approach enables us to compare the various periods of drought and see if the lessons of the past have been assimilated, while tracing the evolution of government action. For purposes of this analysis, a drought is defined as a climatic phenomenon with a major impact on agricultural production.

BACKGROUND AND ANALYSIS

A. Droughts on the Prairies

1. History

There is documentary evidence of at least 20 droughts in the Canadian West during the 19th century, with the most severe occurring at

the end of the 1880s and the beginning of the 1890s. During the first half of the 20th century, the Prairies suffered droughts in 1910, 1914, from 1917 to 1920, in 1924 and in 1929, the year that saw the beginning of a decade of drought - the "Dirty Thirties."

More recently, there were periods of drought in 1961, 1977, 1980, 1984-1985 and 1987-1988. Not all of these are comparable: some covered the entire region, while others affected only part of the Prairies, as in 1961, for example, when Manitoba experienced a very hot, dry summer and a high rate of evaporation that reduced yields significantly for almost every crop.

In 1961, 1977 and 1980, the drought lasted a year each time, although 1977 also marked the start of a decade of dry weather and belownormal precipitation in the Prairies. The 1977 drought started in September 1976: both autumn precipitation and the spring runoff were 65% below normal, leaving farm dugouts empty and shallow-water expanses, such as sloughs, dry. Rainfall in May 1977 returned enough moisture to the soil for the seed to germinate (in some areas), but southern Alberta and southwestern Saskatchewan did not benefit from these spring rains. Thanks to those rains, grain crops did not suffer as badly as grazing land: herds were reduced and feed had to be imported to make up for the poor summer growth. The extremely low water levels in watercourses and basins forced some of the hydro-electric generating stations in Manitoba and Saskatchewan to shut down temporarily, and the drying-out of sloughs and ponds forced many waterfowl to leave their traditional nesting grounds. The drought of 1977 was sufficiently serious to alter the normal Prairie ecosystem, but historically, its significance is more likely to be that it marked the start of another decade-long drought. Table 1 indicates the different types of drought that afflicted the three Prairie provinces between 1977 and 1985.

Table 1

Types of Drought Affecting the Prairies

Alberta	Saskatchewan	Manitoba
	Crop Drought	
1977 1979 1984-1985	1974 1979-1980 1984-1985	1974 1979-1980
	Hydrologic Drought	
1977 1984	1977 1981 1984	1977 1981 1984
	Forage Drought	
1976-1977 1980 1982	1980	1980
1984-1985	1984-1985	

As this table shows, drought afflicted all three provinces in 1984-1985 and affected the cereal harvest and grazing land as well as the flow and level of watercourses. There had been only a few years of respite after the 1979-1980 drought, and in 1987-1988 the agricultural ecosystem on the Prairies still had not recovered from the lack of precipitation two years earlier.

2. The Drought of 1988

The Prairie drought of 1988 actually started in September 1987. It proved to be a spring drought, that is, a drought that reaches its peak in the spring and affects livestock rearing in particular. The grass on which the livestock feed normally grows in April, May and June, and lack of precipitation or of moisture in the soil slows its growth irreparably: even subsequent summer rains cannot increase the rate of growth.

From September to the end of December 1987, northern Ontario and the south and central Prairies received only 75% of their normal

precipitation. In January and February 1988, some central and northern regions recorded almost normal levels of precipitation, while in March north-central Saskatchewan and south-central Alberta had heavy rainfalls that brought the monthly totals above normal for those regions. April was extremely dry almost everywhere on the Prairies and in northwestern Ontario, while abundant rainfall ended the drought in the Okanagan Valley. Southeastern Saskatchewan, the sector suffering most from the drought, received 24-40 millimetres of rain in early May, which was not enough to replenish the water reserves.

The gravity of the drought in the spring of 1988 is attributable primarily to the accumulated deficiency in water reserves going back to September of the previous year. Winter precipitation was slight everywhere on the Prairies and in the interior of British Columbia. For a fifth consecutive year, snowfall levels were deficient; watercourses were not replenished and flows were 40% below normal. To put the September 1987-May 1988 drought into clearer historical perspective, we should mention that in 103 years of recorded data in Calgary, only two periods were drier; in 105 years in Edmonton, only three periods were drier; only one period in 50 years in Estevan; only two periods in 113 years in Winnipeg; and only one period in 46 years in Thunder Bay.

It is not easy for meteorologists to explain exactly why the Prairies have been experiencing exceptionally mild winters over the past few years. It appears that a major change in the pattern of upper-atmosphere circulation, which controls the movement of weather systems over North America, may have contributed to the prolonged drought in 1988. One of the explanatory factors is "El Nino," the great tropical ocean current. Following El Nino's rewarming of the tropical water in the eastern Pacific, a pressure lower than average settled in over the northern Pacific in the autumn and was stationary there all winter, preventing the movement off the Pacific of the weather systems normally found over the Prairies. The fact that the effects of El Nino have been felt twice in the past 10 years, and both times very strongly, goes a long way toward explaining the general warming trend on the Prairies.

Another factor to consider in trying to understand climate changes more fully is the effect on the atmosphere of man's activities. Certain industrial products, including gases such as carbon dioxide and chlorofluorocarbons, are being released into the atmosphere, where they have a tendency to absorb the radiation and the heat from the lower layers of the atmosphere and from the ground and to reflect this radiation and heat back toward the earth's surface. This is known as the "Greenhouse Effect." Since the beginning of the industrial revolution, the quantity of these gases in the atmosphere has been undergoing a constant linear progression, and planet-wide temperatures appear to have increased, on average, by half a degree Celsius in recent years. It has been hypothesized that increased emissions of these gases could cause major climatic changes, but though the correlation between these gases and the global warming trend is obvious, scientists are not entirely certain that the situation on the Prairies over the past 10 years is indeed the result of warming caused by the Greenhouse Effect. Their uncertainty arises from the fact that similar warming trends have occurred previously, so that we may be dealing with natural climatic fluctuations. Nonetheless, the current trend corresponds to what climatic models have predicted for the next 50 years if the quantity of the gases responsible for the Greenhouse Effect continues to increase in the atmosphere at the present rate.

Low soil moisture, low spring runoff and almost no precipitation in many regions: this sums up the drought of 1988. The summer rains brought only slight relief, because although most regions had normal precipitation then, it was often too late for agriculture. Moreover, the rate of flow of watercourses, the level of lakes and farm dugouts, and the height of the water table all remained well below normal, and a number of regions are still suffering water supply shortages. The summer rains encouraged the growth of some crops, but in general these remained short and sparse. Preliminary estimates of the 1988 crop yield, based on a five-year average, put Alberta's at 90% of average, Saskatchewan's at 50%, and Manitoba's at 70%.

3. Comparison Between the Droughts of the 1930s and the 1980s

When human memory is called upon to compare two situations, emotional factors often enter into play. For example, the drought of the 1930s followed the Crash of 1929, and it is very probable that perceptions of the agricultural situation at the time were influenced by this fact. Similarly, the farm assistance programs available in 1930 cannot be compared with those available in 1980. To evaluate the two droughts, then, we must look at neutral factors.

In its climate studies of these droughts, Environment Canada used two analytical factors, the frequency and the intensity of each of the periods of drought during the years from 1929 to 1939 and from 1977 to 1987. It should be borne in mind that 1988's spring and summer drought, whose seriousness we described in the preceding section, was not included in the Environment Canada analysis.

The period 1951 to 1980 served as a standard to establish yearly precipitation averages at the nine observing stations studied. A year is considered a drought year if accumulated precipitation is 25 or more millimetres less than normal.

Table 2
Frequency of Periods of Drought

	1930s		1980s	
Place	Years	Frequency (%)	Years	Frequency (%)
Prince Albert Swift Current Saskatoon Regina Edmonton Calgary Lethbridge Brandon Winnipeg	1928-1939 1929-1939 1929-1939 1930-1942 1929-1937 1929-1938 1930-1942 1933-1942	36.4 60.0 50.0 46.2 33.0 60.0 61.5 50.0 58.0	1980-1987 1977-1987 1977-1987 1977-1987 1975-1987 1979-1987 1976-1987 1976-1987	25.0 54.5 45.5 45.5 38.5 44.0 58.0 33.0 75.0
Average		50.6		46.6

As Table 2 shows, the frequency of periods of drought averaged 50.6% in the 1930s and 46.6% in the 1980s. With a difference of only 4%, we must also take into account the intensity of the droughts. The Environment Canada study shows that the 1930s, when the average precipitation was 41 millimetres below normal, was marginally drier than the 1980s, when the average precipitation was 37 millimetres below normal. However, it should be noted that Edmonton, Lethbridge and Brandon experienced their driest periods in the 1980s. Calgary was the city that had the least precipitation in the 1930s, with 66 millimetres less than normal; Lethbridge had the least in the 1980s, with 64 millimetres less than normal. On average, for all the regions studied, 1937 was the worst year, with precipitation averaging 28 millimetres below normal, closely followed by 1984 with a deficit of 26 millimetres.

The drought of the eighties covered a wider area than the famous "Dust Bowl," but the areas identified as "extremely dry" were larger in the thirties. In 1937, drought affected all of Saskatchewan but only the southeastern part of Alberta and certain isolated regions in southern Manitoba; in 1984, all of Alberta and most of Saskatchewan and Manitoba were affected.

In general, the popular belief that the 1980s rival the 1930s as far as drought is concerned seems not far from the truth. The difference is slight, and it may even be that when the 1988 data are processed and can be included in the comparative analysis of the two periods, strictly scientific results will establish clearly that the drought in the eighties was even more severe than its famous predecessor. Nonetheless, the Dirty Thirties will very likely continue to be perceived as the worst drought in Canada's history, mainly because of the economic context of the 1920s and 1930s, and particularly the absence of assistance programs for the drought's victims.

B. Government Action

1. The Prairie Farm Rehabilitation Administration

It was in the middle of the Dirty Thirties that the federal government brought in the <u>Prairie Farm Rehabilitation Act</u>. This piece of legislation created the Prairie Farm Rehabilitation Administration (PFRA), whose mandate is to assist in land reclamation and to help farmers with soil conservation programs and more especially programs to preserve and develop Prairie water resources.

The PFRA works with the three provincial governments to provide farmers with financial and technical assistance in drilling wells and dugouts, constructing holding dams and irrigation works, and the adoption of conservation measures. Small rural communities also receive technical and financial help in developing new water-supply sources such as wells, reservoirs and water pipelines. A nursery, established in 1901 but administered by the PFRA since 1963, supplies hardy perennial bushes to farmers who want to construct windbreaks in their fields; the PFRA supplies some six million seedlings every year, free of charge.

Through its Community Pasture Program, the PFRA ensures the conservation of about one million hectares of marginal land that would be very vulnerable to erosion if they were put under cultivation. This land is used as grazing land and breeding fields for 240,000 cattle, which enables livestock producers to use the land profitably.

The PFRA, which has a head office in Regina but 21 regional offices all over the Prairies, consists of four services: Soil and Water Conservation, Engineering, Policy and Analysis, and Administration. These services oversee the implementation of various programs and activities and formulate new objectives for stabilizing the Prairie economy by encouraging management of soil and water resources. For 1988-1989, the PFRA has a budget of \$64.7 million, not including special funding for drought-related projects.

Low soil moisture, low spring runoff and absence of precipitation are the PFRA's criteria for determining the three phases of a drought, which in turn determine the implementation of the various special

assistance programs for affected producers. Using the 1988 drought as a model, the phases are determined as follows:

Phase 1: Hydrologic Drought

- This began in the summer of 1987 and continued into the summer of 1988. It may last through 1989 if snowfall levels and spring runoff remain below normal.

Phase 2: Pasture and Forage Drought

- This phase began in April 1988. The poor results of the first harvest threatened the future of forage reserves, and although the summer rains improved the situation in the west-central and northwestern regions, grazing land remained in poor condition, especially through southern Saskatchewan, where the grass was short and sparse.

Phase 3: Crop Drought

- This phase is characterized by low soil moisture and the absence of precipitation during the growing season. Germination was not in general even, because of the lack of moisture, and the plants that finally came up did not reach normal height, which made harvesting difficult, even impossible.
- Lastly, the drought led to the severe wind erosion of the soil, which appeared in various Prairie regions starting in 1988.

2. Special Drought Assistance Programs

When a drought becomes sufficiently serious, a variety of special <u>ad hoc</u> programs are launched in support of the PFRA's activities. In the case of local droughts that do not affect large areas, such programs are generally on a small scale, for example, emergency water supplies are shipped to isolated localities, or feed is transported to the hardest-hit regions. When a drought is widespread, larger-scale programs are implemented.

In 1980, beef, dairy cattle and sheep producers lost almost all their forage stocks to the drought, and the <u>Herd Maintenance Assistance Program</u> was set up to help them preserve their herds over the 1980-1981 winter. Producers whose harvest yields were 80% of normal and who agreed to maintain 70% of their herd until 1 May 1981 were eligible for payments

of \$70 a head for dairy cows, \$35 a head for beef cattle and \$8 a head for sheep. The program's objective was two-fold: to help producers struggling with cash-flow problems to buy feed for their livestock, and to prevent a massive sell-off of livestock, which would have depressed prices for several years. At a cost of \$44 million, the Program made it possible to help more than 25,000 livestock raisers in Alberta, Saskatchewan, Manitoba and northwestern Ontario.

The drought in 1984 and 1985, years that were also marked by an invasion of grasshoppers, necessitated new short-term assistance programs. The Prairie Livestock Drought Assistance Program was created in 1984-1985, and a similar program in 1985-1986. Both programs were designed principally to assist producers in Alberta and Saskatchewan who were being hurt by the drought to maintain their herds at profitable levels. Producers in British Columbia became eligible in 1985-1986. Payments were set at \$60 and \$30 a head in B.C. and Saskatchewan, and at \$75 and \$45 a head in Alberta, depending on whether the region was considered to have been affected "seriously" or "moderately." These programs were concluded in 1986-1987. A total of \$154.6 million in compensation was paid to producers, of which \$79.4 million was provided by the three participating provinces.

The <u>Prairie Crop Drought Assistance Program</u> was also set up in 1985-1986. Payments to farmers were based on lost yields in 1983, 1984 and 1985. Through this program, \$149.2 million was paid to farmers in B.C., Alberta and Saskatchewan; B.C. was the only province that contributed to the program (\$3.6 million).

Special drought assistance programs thus channelled some \$300 million to farmers between 1984 and 1987, with the federal government alone contributing more than \$220 million.

The 1987-1988 drought also generated assistance programs. The first materialized on 31 May 1988 when the PFRA Rural Water Development Program's budget was increased by \$12 million to \$19.2 million.

In June 1988, when the drought had reached the second reference phase, the federal government announced that it would be providing \$76.5 million to western livestock producers affected by the

drought; pursuant to a federal-provincial agreement, provincial contributions brought the total budget to \$153 million. The Federal-Provincial Livestock Drought Initiative has three separate segments designed to help producers keep their herds despite shortages of water and feed. The initiative is administered by the PFRA in close collaboration with the provinces, since drought areas are defined on the basis of crop insurance data on forage production and precipitation.

The first segment of the Initiative, worth \$122 million, will make payments to a maximum of \$60 a head for breed stock. Estimates indicate that Alberta will receive up to \$44 million, Saskatchewan \$41 million, Manitoba \$17 million, Ontario \$12 million and Quebec \$7 million. Payments are made in two installments, with the second installment conditional upon participation in the crop insurance program. Payment per head of livestock leaves producers free to move the animals to other grazing land or to bring in feed, depending on what each judges to be the most advantageous option in a specific region.

The second segment of the Initiative is designed to stimulate the production of greenfeed from late-seeded varieties. This measure is intended to meet the strong demand for greenfeed, which is scarce because of the drought. Initially set at \$53 million, the budget for this segment has been reduced. The most recent data indicate that Manitoba, Saskatchewan and Alberta are eligible to receive, or have already received. \$8.4 million, \$20 million and \$8.4 million respectively.

The third segment of the Initiative is a tax measure allowing livestock producers to defer income tax on revenue earned in 1988 from sales of their livestock at a loss (if, obviously, these losses are attributable to the drought).

The severity of the 1987-1988 drought forced the federal government to create another special program, announced on 10 November 1988. The \$850-million Canadian Crop Drought Assistance Program has thus become one of the biggest special assistance programs for farmers, exceeded only by the Special Canadian Grains Program.

Despite the urgency of the situation, the Program got off to a slow start, mainly because of confusion over provincial participation.

When Ottawa announced the program, no agreement with the provinces had yet been signed and consultation with them on cost-sharing was still going on. The provinces felt they had been bypassed and refused to participate in the Program, leaving the federal government to shoulder the entire cost of its commitment. Unable to withdraw, Ottawa put the Federal-Provincial Drought Coordinating Committee in charge of formulating program guidelines and defining drought areas. Normal yields and average crop-insurance pay-outs in each region were used to calculate special payments, based on acreage cultivated and type of crop.

In the spring of 1989 victims of the drought received their first interim payment cheques, totalling almost \$220 million. It was not until August, after a surprise agreement had been reached between the three Prairie provinces and the federal government under which the provinces undertook to repay 25% of what they received, that final payments were sent out to the farmers.

Table 3

Canadian Crop Drought Assistance Program
Payments Made to Prairie Farmers
(in \$'000s)

Manitoba	\$140,494
Saskatchewan	\$434,002
Alberta	\$ 95,540

* Estimated as at 21 September 1989. Adjustments resulting from appeals against the calculations on which the payments were based could change the final figures.

Under the agreement reached in August, the federal government has agreed to advance the total cost of the program in return for a provincial commitment to repay 25% of the amounts received. This means that Saskatchewan will be repaying the federal government \$115 million over five years, Manitoba \$35 million over five years and Alberta \$51 million over two years. It should be noted that the provinces' commitment to participate in the drought assistance program also included an implicit parallel agreement on amendments to the cost-sharing formula under the Federal-Provincial Crop Insurance Program. At the same time, in fact,

western provinces approved changes to crop insurance under which they, like the federal government, will have to pay 25% of the insurance premiums, while the producers will still pay 50% of the premiums. The 1989 federal budget showed that, by decreasing its contribution to the total premiums from 50% to 25%, the federal government would save \$110 million over each of the first two years of the new program.

Although the maximum coverage per acre was initially set at \$40, it is estimated that, on average, Prairie farmers are getting slightly less than \$20 an acre. For example, of 3,240 townships in Saskatchewan, only 300 were designated as eligible for the maximum payment of \$40 per acre. In August 1989, the final payments under the Program were greeted with outrage: the federal government had deducted such things as over-payments under the Special Canadian Grains Program, unpaid taxes, overdue farm-improvement loans and sums owing from advance payments for crops. Though farmers and farm organizations protested bitterly, the federal government had the right to make the deductions, in order to adjust individual farmers' financial obligations to various federal bodies.

Ontario too agreed to repay 25% of the moneys it received under the Program, which resulted in a total of \$59.4 million in compensation for farmers in that province. A resolution in Quebec's case is still pending: although federal officials involved in the drought assistance program had determined that the province should receive \$48 million in compensation, some administrative problems are still to be resolved. The impasse has created a backlash among Quebec farmers, who are still waiting to be compensated for losses sustained in the 1987-1988 drought.

In all, the Program covers 19 types of crop. The government has set aside reserves in case of the review of, or an appeal against, the amounts paid out. The Program is administered by Agriculture Canada's Grains and Oilseeds Branch, which also supervised the Special Canadian Grains Program.

3. Safety Net Programs

If the special programs are often essential to maintain the balance of the agricultural ecosystem in the face of natural disasters, the

many permanent safety net programs remain the cornerstone of farm income stabilization when a disaster situation drags on for several years.

Crop insurance is probably the best mechanism against income failure caused by crops losses of a natural origin. To date the federal government has split the cost of premiums with producers, while the provincial governments pay the Program's administrative costs. Quebec and Newfoundland are exceptions: in those provinces the two levels of government each pay 25% of the insurance premiums. However, at their meeting in Prince Albert in August 1989, the provincial and federal ministers of agriculture agreed to apply the crop-insurance cost-sharing formula used in Quebec and Newfoundland in all the other provinces as well. Bill C-48, which received first reading on 6 December 1989, is intended to make these changes to the crop insurance program and at the same time increase the level of coverage and the number of crops that can be insured.

Participation in feed crop insurance has been expanding since 1984; in Alberta, almost 55% of grazing land is insured, while in Manitoba and Saskatchewan the figure is between 20% to 25%. Insurance for field crops protects about 65% of cultivated land on the Prairies, which means that almost 75% of farmers contribute in varying degrees to the Crop Insurance Program. In 1987-88, some 92,000 Prairie farmers insured 37.6 million acres for \$2.2 billion, which resulted in payments of \$219 million. When the 1988-89 farming season started, record crop-insurance pay-outs were forecast because of the drought, and the forecasts proved accurate. Preliminary data for 1988-89 show that a total of \$846 million has been paid to farmers, with 90% of this amount due to drought damage. As the following table shows, Saskatchewan alone received 50% of the total crop-insurance compensation in 1988-89.

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Table 4

National Crop Insurance Program

Compensation paid in the Prairie Provinces

(in \$'000s)

	1986-87	1987-88	1988-89
Manitoba	36,695	28,991	120,857
Saskatchewan	127,818	85,434	465,162
Alberta	127,673	102,516	156,427
Canada	397,859	265,766	846,574

A second permanent program, the Western Grain Stabilization Program, protects grain farmers by compensating for reduced sales or increased production costs. Participating farmers receive interim payments and a final amount. In 1987-88, interim payments (made in May 1988) totalled \$695 million, and the final payments (made in January 1989) totalled \$263 million.

Table 5

Western Grain Stabilization Program Total Payments in 1987-88 (in \$'000,000s)

Manitoba			178.8
Saskatchewan			513.9
Alberta			259.9
British Columbia	and	others	5.6

The two payments, which totalled \$958 million, went to 140,637 permit holders participating in the Program -- a record. The total represents \$10.29 per dollar paid into the Program by participants between 1 August 1985 and 31 July 1988.

For the first time since the interim payment system was introduced in 1985, there were no such payments in 1988-89. The decision was made partly because of an initial rise in grain prices and the increased amount finally paid by the Canadian Wheat Board. In principle, final stabilization payments should be made at the end of November 1989, when all the elements of the cost-calculating formula are known.

The existence of these two safety net programs is proof of the vulnerability of the agricultural sector to natural disasters and of

the need for government intervention in extreme cases. Because these programs constitute an effective way of balancing farm incomes, their data is often used to establish the bases for special programs. There is, however, a political willingness, increasingly backed by agricultural interests, to extend the range of the permanent programs so that, with a higher participation rate, they would become the only universal assistance programs for all natural disasters.

PARLIAMENTARY ACTION

Although there were debates in Parliament about the 1988 drought, no bill was tabled. This can be largely explained by the urgent need for intervention to save the herds owned by livestock producers and to stabilize the incomes of grain producers. The flexibility of <u>ad hoc</u> programs encouraged their use, for they enabled the federal government and the provinces to limit the effects of this natural disaster as quickly as possible. Nevertheless, as the comments in the House showed, the federal government has always maintained that it believes in permanent safety net programs.

The only real parliamentary action came from the Standing Senate Committee on Agriculture, which, on 31 May 1988, tabled its report on the drought. The Committee recommended shipping in forage crops and water and transporting livestock to grazing land. It also suggested a deferral of income tax as a measure for maintaining livestock herds.

CHRONOLOGY

- 1929 Beginning of a decade of drought that lasted right through the Dirty Thirties. The Prairies were rechristened the Dust Bowl.
- 1935 The federal government passed an Act establishing the Prairie Farm Rehabilitation Administration (PFRA). Its mandate: to reclaim regions suffering from the drought and erosion in Manitoba, Saskatchewan and Alberta.

- 1939 Parliament amended the 1935 Prairie Farm Rehabilitation
 Act and the PFRA became a permanent body, so that it
 could better ensure long-term planning and assistance
 for soil conservation and water management.
- 1977 Beginning of another decade of drought, culminating in the drought of 1987-1988.
- 1980 Introduction of the Herd Maintenance Assistance Program, which cost \$44 million and helped more than 25,000 Prairie livestock producers.
- 1984 Introduction of the Prairie Livestock Drought Assistance Program, providing payments per head of livestock for either transporting feed or moving the herd.
- 1985 The Livestock Drought Assistance Program continued the 1984 program. When the two programs were wound up in 1986-1987, \$154.6 million had been distributed.
 - The Prairie Crop Drought Assistance Program was created to compensate for yield losses caused by the drought. Farmers in B.C., Alberta and Saskatchewan received about \$149.2 million.
- 31 May 1988 The government voted an emergency \$12 million supplementary budget for the PFRA's Rural Water Development Program.
 - The Federal-Provincial Drought Co-ordinating Committee was set up to formulate assistance strategies for farmers.
- 30 June 1988 The Federal-Provincial Livestock Drought Initiative was launched with a budget of \$153 million, to help maintain stock herds.
- 10 November 1988 The Canadian Crop Drought Assistance Program was announced, providing \$850 million to compensate for yield losses caused by drought.

SELECTED REFERENCES

Arthur, Louise M. The Implications of Climate Change for Agriculture in the Prairie Provinces. SCC 88-01. Atmospheric Environment Service, Environment Canada, Downsview, Ontario, 1988.

- Arthur, Louise M. and David Freshwater. Analysis of the Economic Effects of a Prolonged Agricultural Drought in Manitoba: Summary Report. Research Bulletin No. 86-2. Department of Agricultural Economics and Farm Management, University of Manitoba, Winnipeg, November 1986.
- Guezen, T. and R.L. Raddatz. <u>Drought A Comparison of Dry Periods, 1980s</u>
 vs. 1930s. Atmospheric Environment Service, Environment Canada,
 Winnipeg, May 1988.
- Prairie Farm Rehabilitation Administration. <u>Annual Report</u>. Ottawa, Agriculture Canada, various years.
- Scholefild, Peter. <u>Drought Conditions Intensify Across the Prairies</u>. Climatic Perspectives 88-10. Canadian Climatology Centre, Atmospheric Environment Service, Environment Canada, Downsview, Ontario, May 1988.



